



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
25 FUNSTON ROAD
KANSAS CITY, KANSAS 66115

September 12, 1990

SUBJECT: Emergency Removal at Dugan and Helterbrand Company,
Marshfield, Missouri

FROM: Paul Doherty
Chief, SINV/EP&R/ENSV

TO: Billy J. Fairless, Ph.D.
Director, ENSV

THRU: John R. Helvig
Chief, EP&R/ENSV

This is to request approval to initiate an emergency removal action at the above-referenced site to secure leaking vats of cyanide solution, clean up and dispose of cyanide solution running off site, clean up and dispose of soil contaminated by cyanide runoff, and to secure the site from unauthorized entry by constructing a perimeter fence. The estimated cost for the site stabilization phase is \$152,000 (estimate attached).

Background file information from the Missouri Department of Natural Resources (MDNR) and the City of Marshfield, Missouri, is attached. In summary, the site is a former silver recovery system which employed a cyanide-electroplating process. The facility began operation in 1983 and has a lengthy history of noncompliance/noncooperation with the local treatment facility. In July of this year, the City of Marshfield disconnected sewer service to the facility. Shortly thereafter, the owners defaulted on a Small Business Administration loan and abandoned the facility.

Recent inspections by local officials and the Springfield, Missouri, office of MDNR have documented releases of cyanide bath solutions off site and the unauthorized entry by local children. Plating bath vats (i.e., 10-20 percent cyanide) are apparently leaking, and leachate is surfacing from under the foundation and leaching offsite during wet weather conditions.

Immediate action is necessary to secure the site, eliminate further release of cyanide contaminants, and to clean up contaminated materials offsite.



S00048837
SUPERFUND RECORDS

The following attachments are included:

ATTACHMENT I	MDNR File Summary January 1983 - September 1985	08/22/90
ATTACHMENT II	MDNR Inspection Report	08/29/90
ATTACHMENT III	City of Marshfield Response Files 08/06/90 - 09/05/90	
ATTACHMENT IV	Property Title Records	07/13/90
ATTACHMENT V	MDNR Resource Recovery Facility Application Form	
ATTACHMENT VI	Photographs by P. Doherty, EP&R	09/11/90

This situation has been discussed with Cheryle Micinski, Office of Regional Counsel, who is prepared to issue expedited Notice Letters if an emergency action is approved.

If the responsible parties fail to take appropriate action, the site cleanup is projected to cost \$400,000 not including groundwater remediation actions.

A final Action Memorandum for this project can be drafted for review on September 14, 1990, upon my return to the office.

Attachments

cc: Cheryle Micinski, CNSL

ATTACHMENT I

DUGAN AND HELTERBRAND CO., INC.

File Summary
August 22, 1990

Dugan and Helterbrand Co., Inc. (D&H) recovered silver from photographic films using a cyanide process at its facility at 190 George Street in Marshfield, Missouri. The start-up date is not known.

January 1983	D&H started to neutralize film chips contaminated with cyanide before sending them to the Webster County Sanitary Landfill. Prior to this date, unneutralized film chips were sent to the landfill.
Summary 1983	D&H attempted to discharge cyanide solutions to the city sewer. The sewer line was blocked and some of the solution surfaced and killed six head of cattle.
January 24, 1984	The Missouri Department of Natural Resources (MDNR) certified D&H as a hazardous waste resource recovery facility.
March 12, 1984	The MDNR approved a special waste disposal request for waste film chips from the silver recovery process based upon the presence of a cyanide reduction treatment process used for all film chips, and based upon laboratory analysis showing that residual cyanide levels were between 61 ppm and 100 ppm. These chips were approved to go to the Webster County Sanitary Landfill.
July 31, 1984	The MDNR notified D&H that, because of a regulatory change, the recovery of silver meeting the requirements set forth in 10 CSR 25-4.010(1)(E)(6) would no longer be regulated effective August 13, 1984. Based upon this, the hazardous waste resource recovery certification was no longer required and was withdrawn by MDNR.
April 25, 1985	Two representatives of MDNR's Southwest Regional Office (SWRO) and one representative of the Laboratory Services Program (LSP) of the MDNR conducted a hazardous waste compliance inspection at D&H. During the inspection, three samples of film chips were collected by LSP personnel including two samples of film chips following the cyanide reduction treatment and one sample prior to the cyanide reduction process. The results of laboratory analysis conducted on the film chips showed 1,010 ppm and 1,370 ppm of cyanide on the film chips after the cyanide reduction process and 2,338 ppm of cyanide on the film chips prior to the cyanide reduction process. Consequently, the film chips were reactive hazardous waste meeting the definition in 10 CSR 25-4.010(4)(A). The film chips from the silver recovery process were disposed of as a nonhazardous waste in the Webster County Sanitary Landfill.

Dugan and Helterbrand Co., Inc.
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April 30, 1985 Order to Abate Violations #HW-85-005 was issued to D&H for the improper disposal of film chips contaminated with cyanide. The company was ordered to stop sending film chips to the landfill.

May 7, 1985 An agreement was reached between D&H and the MDNR which allowed the film chips to be disposed of at a sanitary landfill if each batch were tested beforehand and less than 250 ppm of cyanide was present on the chips.

September 7, 1985 SWRO conducted a hazardous waste compliance inspection. No violations were noted and a regulated quantity of hazardous waste was not being generated. D&H was using a newly installed enzyme extraction process to recover the silver from the film. The cyanide process was used only 10% of the time.

A. JACQUENT II

REPORT OF INVESTIGATION

**DUGAN & HELTERBRAND COMPANY
P.O. Box 616
MARSHFIELD, MISSOURI**

On August 23 and August 27, 1990, I conducted a Hazardous Waste Compliance Inspection and Resource Recovery Compliance inspection at the Dugan and Helterbrand facility in Marshfield, Missouri. Mr. George Parsons, Water Pollution Control Program, SWRO, was present during the inspections and Mr. Joe Helterbrand represented the facility.

The inspections were conducted at the request of the enforcement units of the Hazardous Waste Section and the Water Pollution Control Sections in Jefferson City.

Dugan and Helterbrand had been in the business of recovering silver from spent x-ray and newspaper film. Cyanide was used in the process to release the silver from the film and get it into solution, then the solution was passed through plating tanks where the silver was recovered through a plating operation. These operations took place in 14 - 2500 gallon tanks and adjoining plating tanks.

In 1985, the company converted from the cyanide process to an enzyme process for the recovery of the silver. This change was brought about as a result of Department of Natural Resources action against the facility regarding the disposal of the cyanide contaminated film chips at the Webster County sanitary landfill. Because of the expense in treating the water prior to discharge to the municipal sewers and the continual recovery of water that was seeping up through cracks in the concrete, the wastewater is still on site and has not been treated to break down the cyanide. Mr. Helterbrand indicated the concentration of the cyanide in the tanks is about 10,000 ppm.

At the time of the inspections, Mr. Helterbrand advised us that the Small Business Administration (SBA) had foreclosed on him and that he had no equipment with which to do anything and, as far as he was concerned, the property and any materials in the tanks were their responsibility. It was noted, however, that the SBA had not foreclosed on the property where the silver recovery operation had been taking place. Mr. Helterbrand agreed to this fact but indicated that he still had nothing to work with and no money with which to do anything. He had been working around the property in an effort to keep it cleaned up and prevent runoff of the seepage which was coming up through the cracks in the concrete (This will be discussed later in the report).

There had been one shipment of hazardous waste from the facility. No copy of the manifest could be obtained because the copying machine had been removed with the other equipment. The manifest indicated that on 3/9/89, 5000 gallons of waste cyanide solution was hauled from the site to the Heritage Facility in Kansas City. The solution contained 23,000 mg/l CN and was manifested as F007 waste, spent cyanide plating bath solution. The waste was actually from the cyanide treatment of film chips for the recovery of the silver. The manifest had been completed and signed. No manifest violations other than improper hazard class were observed.

Mr. Helterbrand did not consider the cyanide solution in the tanks to be a hazardous waste because he had been trying to process it and discharge it into the municipal sewers. As a result, he did not feel that he was a hazardous waste generator and he did not have any of the paperwork required by the hazardous waste regulations.

The facility had received Resource Recovery Certification in 1984 but was later advised that it was not necessary for precious metal recovery. In 1988, the company was advised that they would once again need to obtain Resource Recovery Certification but Mr. Helterbrand did not submit an application.

The following paperwork was requested for review but was not present or available:

- Records on the amount of film received and processed
- Records on the amount of solid and/or hazardous waste generated
- Summary Manifest Report
- Waste Analysis Plan
- Inspection schedule and logs
- Personnel training records
- Contingency Plan

There is no "hazardous waste" stored in drums or tanks at the site according to Mr. Helterbrand. There were some fifty drums, most less than half full, of cyanide crystals that had been removed from the tanks when Heritage pumped out the cyanide solutions. Mr. Helterbrand indicated that these crystals could be reused in the process so they were not wastes. They were stored in the north building in cardboard drums, were open and were not labeled.

There is no internal alarm system at the facility and no device in the operations area for summoning emergency assistance. No waste oil is generated at the facility.

The facility has not added any film chips to be processed for silver recovery to the cyanide tanks for the last five years, only to the enzyme process tanks which are now setting empty due to the foreclosure.

There are essentially no unprocessed film chips at the facility awaiting processing. There are numerous empty containers in the receiving area and in the hammermill area. There are also several containers of bicarbonate of soda and borax crystals throughout the plant. These crystals were to be used in the process.

The four tanks in the west processing building are full of wastewater to be processed (10 % CN solution). Each tank has a 2500 gallon capacity.

The area between the four buildings at the facility is concrete slab. There is seepage coming up through the cracks and seams in the concrete and flowing toward the railroad ditch. This seepage is dark brown in color and has a cyanide concentration of 25 - 100 ppm. Mr. Helterbrand indicated it was a result of tank overflows which occurred several years ago but agreed that there may be some leakage through the floor in the east building where the ten tanks of cyanide solution are located. Seepage has been recovered in a hole and pumped back into a plastic tank between the maintenance shed and the east processing building.

There are numerous drums of borax slag setting around the facility. The borax is used to remove the impurities from the silver. Soda ash is also added to the smelting process to remove the iron from the silver.

The east buildings were locked at the time of the August 23 inspection and Mr. Helterbrand had no key so arrangements were made to revisit the site at 4:00 on August 27, 1990, at which time the building would be unlocked.

On August 27, 1990, it was noted that there had been leakage from the tanks onto the floor and there were cracks in the floor. There were berms to prevent the liquid from flowing out of the building and there was a sump pump for the recovery of the water so it could be returned to the concrete processing tanks. Mr. Helterbrand indicated there was about a 3 - 5 gallon per day leak in the tanks but that it is recovered. He did agree that some of it may be seeping through the cracks in the floor.

There were ten - 2500 gallon tanks in the east building, all but one of which were thought to be close to full. There is at least one process tank that has chips in it, the others having cyanide salts and solution.

There were also 16 barrels of untreated film chips and 2 drums of sludge that had been removed from the tanks. In the west end of the building there was a metal tank containing a brown sludge which was reported to be cyanide sludge from the tanks, also reusable.

In the south end of the east building there were about 50 drums of CN salt. Most of the drums were half full or less. This material was removed from the tanks when Heritage removed the cyanide solutions. There were also three large plastic tanks in the back of the room. These contained water and cyanide solution.

In the maintenance building were about 5-600, 1/2 gallon jugs of fixer that has not been processed. It has a low silver content and the low silver price does not make it feasible to process it at this time.

Submitted by


Charles L. Kroeger

ATTACHMENT II

08/06/90

I contacted Mr. Rick Huntz concerning the alledged dumping of waste industrial water at the D&H Silver Recovery plant at 190 George St. in Marshfield. I informed him at the direction of the City Attorney and City Administrator whom had been briefed this morning.

I informed Rick of the updates on the facility including the severence of the lateral to the City system. I also informed him that water was still being used according to meter readings. I told him about the hose out back and the hole in the south east corner of the building with the area damp with liquid standing in several locations on the B&N RR row for 10-15 yards by 10 feet wide running west parallel with the tracks.

Rick informed me to contact the regional office and provide them with the information. He stated that he would contact EPA and Mr. James Penfold.

I contacted the regional office Mo. DNR and spoke with a Judy Dill and gave her all the information I had. She said she would forward the info to the proper staff. She stated that the office had already received at least two other complaints about D&H and that Chuck Krieger had made a visit to the facility.

1500 hrs. 08/13/90

Dan, George Parsons, 745 and myself met at the WWTF to discuss activies to be either taken or delegated to higher authority concerning the D&H facility and the alledged dumping of wastes. George had been advised to attempt to contact the legel owners of the property and advise them that suspected illegal activities might be occuring on the premises. It was assumed that a Mr. Grimes out of St. Johns Kansas was the owner.

Parsons gave me his home phone and stated he would be conducting light surveillence of the site for future dumping. He also suggested that we aid in the surveillence by keeping a watch on activities at the site.

Marshfield Police agreed to watch for future occurences.

08/14/90

I arrived around 0720 and noted activity in the main building. I contacted Dan and Parsons. Parsons arrived and we contacted Thomas Cantrell and viewed the wet areas around the se corner of the building. We asked Cantrell about the wet area and he said he had left around 1:30 the day before and did not know anything about it. He said Joe arrives around 4:00 in the afternoon.

We ran analysis of a sample Parsons had taken the previous afternoon and showed a Dissolved Co concentration of 12.5

mg/l and a total Cn of 25.0 mg.l. An ammonia nitrogen concentration of 39.75 mg/l.

Joe Helterbrand address is 1431 W. Riverside Springfield Mo. and his new business address is P.O. Box 616 Marshfield.

AUGUST 27, 1990

HAZARDOUS WASTE AND STORAGE INSPECTION AT D&H SILVER
RECOVERY 190 GEORGE ST. MARSHFIELD, MO.

I met a Mr. Chuck Krieger and Mr. George Parsons from the Mo. DNR Regional Office at the alledged site at 1600 hrs. and toured the rear buildings with Mr. Joe Helterbrand and a Mr. Thomas Cantrell whom had supposedly been cleaning up around the facility for Helterbrand and had been cleaning up the leaking cyanide solution in the eastern building daily and pumping the contents back into the (leaking) tank. I noted a dark brown liquid on the floor of the building which resembled the liquid in the first tank to the right as we entered that had been uncovered. Later in the conversation Mr. Helterbrand admitted that a tank had been leaking and that Cantrell was cleaning it up and pumping it back into a tank. Mr. Krieger apparently noted another tank leaking and cracks in the floor of the containment building where the liquid could escape. Helterbrand infered that the liquid we have noted in the south ditch was being flushed from under the buildings during rains.

In the east building were 10 concrete tanks, covered, that Helterbrand said held waste cyanide sludge, cyanide chips and waste cyanide solutions. There were also eight 55 gallon drums, two of which were rusted completely through, stacked on top of the covered concrete tanks. These drums held cyanide chips. One large metal container resembling a dumpster held cyanide sludge a size about 500 gallons. In the attached room on the south of this building was from 40-70 drums of assorted sizes and made from cardboard, metal, and plastic containing what Helterbrand stated was waste sludge from the cyanide silver recovery process. Also in the rear were three tanks containing cyanide waste water which he stated had been treated with some amounts of chlorine. A large plastic hopper type tank setting outside the building had also been filled with cyanide sludge material. Helterbrand informed us that he had filled every tank and container with this material due to the fact we had cut off his sewer he was unable to treat and dispose of this material. He also said that the material was waste material which contained no silver and was of no use to anyone. He went on to say that a waste recovery firm wanted to charge him 24,000 dollars to dispose of the drums in the south building. He stated that he was done and was no longer in business and that the material belonged to SBA due to the fact that his other equipment had been reposed. He stated also that a spill had taken place sometime prior to 1984 and that cyanide tanks had run over.

Helterbrand stated that he and Thomas was keeping the solution cleaned up that was leaking and that the best way to dispose of the material would be for someone to hire them to treat the material on site and place into the sewer. He stated several times that they had not dumped solution into the ditch on the premises. He also stated that he was concerned with the environment and would not want the material

released or wouldnt want to drink it.

I assume that the Cantrell employee is attending the leaking tanks daily. He holds the keys to the building according to Joe. He also is operating a new motorcycle. Mr. Helterbrand stated on several occasions that he no longer was in business and that the material and buildings belonged to SBA. He also affirmed that the material being held was cyanide waste material and was of no use as a product toward recovery of silver.

08/28/90

Received call from 748 around 1930 hrs. informing me of a liquid substance on the concrete at the rear of the front building of D&H business at 190 George st. I attempted to contact George Parsons but was unable to make contact.

08/29/90

Received call around 0726 from 747 regarding the brown substance and met him at the 190 George Street location to investigate. Upon investigation at the rear of the front building I observed a brown colored liquid in three locations near the rear overhead door. (see map). The liquid was seeping from expansion joints in the concrete pad and was setting in a 15x15x11 in. by 7" deep hole in the concrete pad. The liquid appeared to be moving toward the ditch on the south side of the building and the area was damp including locations on the B&N railroad row. I requested that Garry contact Parsons and began collecting samples of the liquids.

Parsons arrived around 0856 hrs. and was informed of the situation and took custody of samples we had collected for him. Other samples was taken to the plant lab for analysis. Dotson took pictures of the locations where the liquid was setting and seeping from. No one was at the location during the investigation and no activity appeared to be taking place inside any building while we were there.

Bottle A= sample location A= taken 0836 hrs.

Bottle B= sample location D= taken 0839 hrs.

Bottle 1= sample location concrete pit= 0840 hrs.

Bottle 2= sample location hole in ground south side= 0841 hrs.

MARSHFIELD POLICE DEPARTMENT

OFFENSE REPORT

COMPLAINANT: J. DODSON, REPORTING OFFICER CASE #: 08299071MPD

ADDRESS: MARSHFIELD PD

PHONE:

OFFENSE: HAZARDOUS MATERIAL DISCHARGE/UNSAFE STRUCTURE
UNSECURED UNDERGROUND TANK.

PLACE OF OCCURRENCE: 190 GEORGE ST., MARSHFIELD, MO.

REPORT RECEIVED BY: J. DODSON

TIME: 7:05 AM

DATE: 082990

WHEN I REPORTED FOR DUTY ON THE ABOVE DATE, OFFICER MIKE KEETH, WHO I WAS RELIEVING, TOLD ME THAT HE HAD FOUND A BROWN OILY LIQUID BETWEEN THE BUILDINGS AT THE DUGAN/HELTERBRAND SILVER RECLAIMING PLANT, LOCATED AT 190 GEORGE ST. OFFICERS HAD BEEN ADVISED TO WATCH FOR EVIDENCE OF A LIQUID SPILL AT THIS LOCATION BY CITY FIRE MARSHALL JOHN COOPER. COOPER HAD INFORMED ME THE PREVIOUS DAY THAT THERE WERE TANKS OF A CYANIDE SOLUTION STORED IN THE BUILDINGS, AND THAT SOME OF THE TANKS APPEARED TO BE LEAKING.

AFTER RELIEVING OFFICER KEETH, I WENT TO 190 GEORGE ST., ARRIVING APPROXIMATELY 7:05 AM. THERE DID NOT APPEAR TO BE ANYONE AT THE BUSINESS. I WENT AROUND TO THE BACK OF THE MAIN BUILDING, AND NOTICED A CHEMICAL SMELL, WHICH I DID NOT RECOGNIZE. THERE ARE SEVERAL OTHER BUILDINGS BEHIND THE MAIN ONE, AND A CONCRETE SLAB CONNECTING THEM. I NOTICED THAT CRACKS IN THE CONCRETE SLAB, AS WELL AS THE SEAMS APPEARED DAMP.

BEHIND THE LARGE, MAIN BUILDING, WHICH IS CONNECTED TO A SMALLER BUILDING BY AN AWNING, I FOUND A PUDDLE OF A BROWN LIQUID AS DESCRIBED BY KEETH. THIS PUDDLE APPEARED TO ORIGINATE UNDER SOME DRUMS OF RUBBISH, THAT WERE SETTING ON THE CONCRETE SLAB, ON THE EAST SIDE OF THE MAIN BUILDING. THE PUDDLE THEN RAN TO THE BUILDING, ALONG THE EAST WALL. THE PUDDLE RUNNING TO THE BUILDING WAS APPROXIMATELY 2 FT. X 5 FT. IT THEN COLLECTED AGAINST THE WALL, ON TOP OF THE CONCRETE, IN A PUDDLE APPROXIMATELY 2 FT. X 10 FT. THE CONCRETE SOUTH OF THE PUDDLE WAS DISCOLORED TO THE EDGE OF THE SLAB, WHERE A DITCH RAN DOWN TO THE RAILROAD RIGHT OF WAY. THE BOTTOM OF THE DITCH WAS OBVIOUSLY WET, ALTHOUGH THERE WAS NO STANDING LIQUID. THERE WERE APPARENT CURRENT PATTERNS IN DEBRIS IN THE FLOOR OF THE DITCH.

WE ALSO LOCATED A HOLE IN THE SLAB, APPROXIMATELY 15X15X11 IN. AND 7 INCHES DEEP. THIS HOLE ALSO CONTAINED BROWN LIQUID, WHICH RESEMBLED THE LIQUID IN THE PUDDLE. SAMPLES OF THIS LIQUID WERE OBTAINED FOR ANALYSIS.

I HAD NOTIFIED COOPER TO MEET ME AT THE LOCATION AND HE ARRIVED SHORTLY AFTER I DID. HE AND I PROCESSED THE SCENE. I PHOTOGRAPHED THE SCENE, AND THEN COOPER AND I TOOK SAMPLES OF THE LIQUID, FOR ANALYSIS. DURING THE INVESTIGATION, WE LOCATED AN UNDERGROUND TANK, COVERED BY A WOODEN TRAP DOOR, WHICH WAS UNSECURED. THE TANK CONTAINED A QUANTITY OF LIQUID. COOPER USED A DIPPER, WITH A HANDLE APPROXIMATELY 5 FT. LONG, AND REACHING INTO THE TANK WITH HIS ARM, WAS UNABLE TO REACH THE BOTTOM. THE TOP OF THE LIQUID WAS APPROXIMATELY 3 FT. BELOW THE TOP OF THE TANK. THIS TANK WAS LOCATED ON THE SOUTH SIDE OF THE MAIN BUILDING, AND WAS CONNECTED TO THE BUILDING BY PIPES WHICH RAN FROM THE WALL OF THE BUILDING, INTO THE TOP OF THE TANK. JUST WEST OF THIS TANK, WE LOCATED A PUDDLE OF WHAT APPEARED TO BE WATER, NEAR A HOSE ALONG THE SOUTH WALL OF THE BUILDING. WE TOOK SAMPLES FROM BOTH THE TANK AND THE PUDDLE ALONG THE SOUTH WALL OF THE BUILDING.

DURING THE INVESTIGATION, GEORGE PARSONS, AN INVESTIGATOR WITH THE MO. DEPT. OF NATURAL RESOURCES, SPRINGFIELD REGIONAL OFFICE, ARRIVED. WE TURNED OVER SOME OF THE SAMPLES WE HAD TAKEN, INCLUDING THE ONES TAKEN FROM THE PUDDLE ON THE SOUTH SIDE OF THE BUILDING AND THE UNDERGROUND TANK, TO HIM. COOPER HAD ALSO TAKEN SOME SAMPLES FROM THE PUDDLE ON THE EAST SIDE OF THE BUILDING AND THE HOLE THAT WE HAD LOCATED IN THE CONCRETE SLAB, TO THE CITY TREATMENT PLANT LAB FOR ANALYSIS BY GARRY MATNEY, THE CITY LAB TECHNICIAN/PLANT OPERATOR. THE SAMPLES TURNED OVER TO PARSONS WERE SEALED AND CHAIN OF CUSTODY WAS DOCUMENTED.

I NOTIFIED STAN GREENE, THE MARSHFIELD CITY BUILDING INSPECTOR, OF THE UNSECURED UNDERGROUND TANK. HE MET ME AT THE LOCATION AND EXAMINED IT. HE TOLD ME THAT HE WOULD CONTACT THE CITY MAINTENANCE SUPERVISOR TO SECURE THE TRAP DOOR OF THE TANK, TO PREVENT THE POSSIBILITY OF ANYONE FALLING INTO IT.

THE SAMPLES OBTAINED AT THE SCENE WERE ALL TURNED OVER TO EITHER PARSONS OR MATNEY. NONE WERE BOOKED INTO EVIDENCE AT THE POLICE DEPT. THE PHOTOGRAPHS TAKEN WERE TURNED OVER TO COOPER. THIS REPORT IS BEING SUBMITTED TO THE CITY FIRE MARSHALL, THE CITY ATTORNEY, AND THE MO. D.N.R.

OFFICER



082990

09/05/90

D&H Property 190 George St.

0930 I spoke with Mr. Chuck Krieger concerning the DNR plans concerning the cleanup of the above property. Mr. Krieger explained that the Jeff City office had not received his report. He stated that he would contact the Main Office and get back to me.

Chuck call again around 1108 hrs. and informed me that plans were under way to remove the liquid from the site. Plans are to begin early next week. He said the clean up is estimated to cost in the area of \$100,000.00.

Chuck called again and stated that the clean up team would be in Marshfield around 1600 hrs. and would meet us at the site.

Bill Sims, John Dotson, Dan McMillan and myself met with Mr. George Parsons, Larry Alderson, and Chuck Krieger of Mo. DNR; Mr. Bill Jaekel, Margaret Wichard, and Juliette Travous of Riedel Environmental Services Inc.; and Mr. Helterbrand owner of the site at 1620 hrs. 09/06/90 at the 190 George St. location. We toured the facility so that the clean up team could assess the situation and begin preliminary plans for site clean up and stabilization of the leaking product. Officer Dotson took photos of the inside of the buildings to document the scene.

After the investigation the clean up team informed us that all information would be directed through DNR. Chuck informed me that he would be in touch in the morning, hopefully with some preliminary plans and time tables.

Helterbrand, husband and wife, and Etolia Dugan, a single person, Grantors have executed this instrument the day and year first above written.

ATTACHMENT

II

Joe L. Helterbrand
Joe L. Helterbrand
Elaine Helterbrand
Elaine Helterbrand
Etolia Dugan
Etolia Dugan

STATE OF MISSOURI)
COUNTY OF Greene) SS

On this 13th day of July, 1990, before me personally appeared Joe Helterbrand, Elaine Helterbrand, husband and wife, and Etolia Dugan, a single person, and being duly sworn, did say that they acknowledged said instrument to be their free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at my office the day and year first above written.

Gail Smith
Notary Public

SEAL
My Commission Expires: 9-18-91

A part of the SE 1/4 of the NW 1/4 of Section 9, Township 30N, Range 10W; the boundaries being described as beginning at the Southwest corner of said SE 1/4 NW 1/4, thence East along the South line of existing Dugan Addition 544.8 feet to the East line of George Street, thence North along the East line of George Street 37 feet for point of true beginning, thence North along the East line of George Street 690 feet more or less to the Southwest corner of Dugan Second Addition, thence East along the South line of Dugan Second Addition 115 feet, thence South to a point 37 feet North of the South line of the SE 1/4 NW 1/4, thence West 115 feet, more or less, to point of beginning.

A part of the E 1/2 of the SE 1/4 NW 1/4 Section 9, Township 30, Range 10, described as beginning at the Southwest corner thereof, and thence East 106 feet to right of way of the St. Louis and San Francisco (now Burlington Northern) Railway, thence Northeast along North line of said right of way to East line of said SE 1/4 NW 1/4 Section 9, thence North with said East line to the Northeast corner of said forty, thence West with the North line of said forty to the South side of Marshfield and Springfield Public Road (now designated Route "00"), thence Southwest along the South side of said public road in a Southwest direction to the West line of the E 1/2 SW 1/4 NW 1/4 said Section 9, thence South to the place of beginning.

EXCEPTING from the above described tract, a tract owned by Dugan-Helterbrand, Inc. as recorded in Book 320 at Page 100, and described as commencing at the Northwest corner of said Quarter Quarter Section and go thence East 660 feet to the center thereof, thence South along the line dividing the East and West halves of said quarter quarter section a distance of 323 feet to the point where said dividing line intersects the South right of

way line of Old U. S. Highway No. 66 (now Route "00") for point of beginning; thence South 1 degree West 195 feet; thence North 76 degrees East 166 feet and 3 inches; thence North 1 degree East 251 feet; thence South 60 degrees West along the South right of way line of U. S. Highway No. 66 (now Route "00") a distance of 187 feet and 10 inches to the point of beginning. ALSO EXCEPTING that part of the SE 1/4 of the NW 1/4, Section 9, Township 30, Range 18, where the Dugan-Helterbrand, Inc. plant is located, described as beginning on the South line thereof and the East line of George Street in the City of Marshfield, Missouri, thence East 257 feet 1 inch, thence Northeast along the railroad right of way 183 feet 4 inches, thence North 75 feet 9 inches, thence Southwesterly 264 feet 8 inches, thence South 56 feet 3 inches, thence West 126 feet 1 inch, thence South 37 feet along the East right of way of George Street to the point of beginning. ALSO EXCEPTING a part of the NW 1/4 Section 9, Township 30, Range 18, deeded to William Carl Young and wife by deed recorded in Book 312 at Page 104 described more particularly as beginning at a concrete marker on the North line of the railway right of way at a point where the East line of the SE 1/4 NW 1/4 join, thence running North 522 feet 3 inches to a steel post in a concrete wall; running thence West 201 feet 6 inches to a steel post in a concrete wall; thence South 667 feet 6 inches to the North right of way line of the railroad at which point is located a car axle; running thence in a Northeasterly direction along the right of way of the railroad a distance of 240 feet 9 inches to the point of beginning.

ALSO, EXCEPTING a tract now in Young's Shopping Center described as beginning at a point where the South right of way line of Route "00" crosses the East line of the NW 1/4 Section 9, Township 30, Range 18, running thence South along the East line thereof to a point 522 feet and 3 inches North of the railroad right of way, thence West 200 feet, thence North and parallel with the East line of the NW 1/4 a distance of 207.7 feet; thence Northwesterly making an angle of 17 degrees 56 minutes to the left with the last described course a distance of 59.5 feet; thence in a Southwesterly direction and making an angle of 100 degrees 57 minutes to the left with the last described course a distance of 75 feet; thence in a Northwesterly direction and making an angle of 109 degrees 25 minutes to the right with the last described course a distance of 100 feet to the South line of West Washington Street (Route "00"), thence Northeasterly along said right of way line to the point of beginning.

THIS INSTRUMENT made on the 11th day of March by and between James Foster and Karen Foster

of the County of Webster in the State of Missouri parties of the first part, and Dugan-Helberbrand, Inc. whose mailing address is Route 2, Marshfield, Missouri 65706

part Y of the second part. WITNESSETH that the said part 1 and 2 are in consideration of the sum of (\$10.00) AND OTHER GOOD AND VALUABLE CONSIDERATION

part Y of the second part. TEN DOLLARS. X

to them paid by the said part Y of the second part, the receipt of which is hereby acknowledged, do by these presents GRANT, SELL, CONVEY and CONFIRM unto the said party

ITS heirs and assigns, the following described lots, tracts or parcels of land lying, being and situate in the County of Webster and State of Missouri, to-wit:

A tract of land located in the Southeast Quarter of the Northwest Quarter of Section 9, Township 30, Range 18, described as follows: commence at the Northwest corner of said quarter quarter section and go thence East 660 feet to the center thereof; thence South along the line dividing the East and West halves of said quarter quarter section a distance of 323 feet to the point where said dividing line intersects the South right of way line of Old U. S. Highway No. 66, for a point of beginning; thence South 1° West 195 feet; thence North 76° East 166 feet and 3 inches; thence North 1° East 251 feet; thence South 60° West along the South right of way line of Old U. S. Highway No. 66 a distance of 187 feet and 10 inches to the point of beginning.

TO HAVE AND TO HOLD the premises aforesaid, with all and singular the rights, privileges, appurtenances and immunities thereto in anywise appertaining, unto the said part Y of the second part, and unto ITS heirs and assigns forever, the said grantors hereby covenanteeing that they are lawfully seized of an indefeasible estate in fee in the premises hereto conveyed; that they have Good right to convey the same; that the premises are free and clear of any encumbrance done or suffered by them or those under whom they claim; and that they SUCCESSORS, heirs and assigns forever, against the lawful claims and demands of all persons whomsoever.

IN WITNESS WHEREOF, the said parties of the first part have hereunto set their hands and seal B. the day and year first above written. JAMES FOSTER (SEAL) KAREN FOSTER (SEAL)

STATE OF MISSOURI County of Webster James Foster and Karen Foster, his wife before me personally appeared } in the 11th day of March 19 81

to me known to be the person(s) described in and who executed the foregoing instrument, and acknowledged that they executed the same as their free act and deed. My term of office as a Notary Public will expire on March 6, 1982. Notary Public

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at my office in Marshfield, Missouri, the day and year first above written. My term of office as a Notary Public will expire on March 6, 1982. Notary Public

STATE OF MISSOURI County of Webster Glenn Dunn

Recorder of said County, do hereby certify that the within instrument of writing was on the 11th day of March A. D. 1981, at 3 o'clock

25 minutes P. M. duly filed for record in this office, and is recorded in the records of this office in Book 320 at Page 188

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at Marshfield, Missouri, on this 11th day of March A. D. 19 81 Glenn Dunn Recorder Notary

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Waste Management Program
P.O. Box 1368
Jefferson City, Missouri 65102

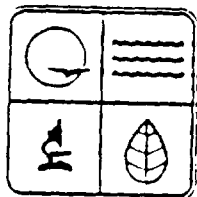
ATTACHMENT

OFFICE USE ONLY

FACILITY I.D. NO.

____/____/____

Date Application Approved ____/____/____



CERTIFIED
RESOURCE RECOVERY FACILITY
APPLICATION FORM

1. Name of Applicant DUGAN & HELTERBRAND CO., INC.
Address 190 George Street Phone 417 - 468 - 3900
City Marshfield State Missouri Zip Code 65706
2. Name of Facility DUGAN & HELTERBRAND CO., INC.
Street Address 190 George Street, Marshfield, Missouri 65706
Location of Facility: Nearest City or Town Marshfield County Webster
1/4 SE 1/4 NW 1/4, Section 9
Township 30 Range 18 No. of Acres ± 0.74

Applicant's Certification

3. I certify that I have personally examined and am familiar with the information in this application and believe that the information submitted is accurate and complete. I am aware that making a false statement, or misrepresentation in this application is grounds for revoking Resource Recovery Facility Certification. I may also be guilty of a misdemeanor and upon conviction, may be punished by fine or imprisonment.

Applicant Signature _____ Date _____
Dugan & Helterbrand Co., Inc. by Joe Helterbrand, President

4. Land Owner Signature _____ Date _____
Name Whitfield Dugan Phone 417 - 468 - 2381
Address 1101 West Washington
City Marshfield State Missouri Zip Code 65706

5. List all types of hazardous wastes to be used, reused, recovered or reclaimed at the facility.

[illegible]

6. On a separate page describe the storage, and resource recovery process for each waste listed above.

7. As required by 10 CSR 25-9.010, attach the following information.

10 CSR 25-9.010(1)(C)2.A.

Flowsheet through resource recovery process

10 CSR 25-9.010(1)(C)2.B.

Quality control plan

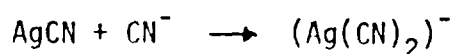
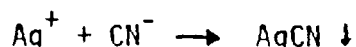
10 CSR 25-9.010(1)(C)2.C.

Facility drawings

9. Has this facility obtained interim status or a permit from the U.S. Environmental Protection Agency? Not Required

OUTLINE OF RECOVERY PROCESS (To accompany "Flowsheet")

- A. Empty Process Tank is charged with ± 4000 pounds of chopped film scrap and the tank is sealed.
- B. Solution of sodium cyanide (NaCN) is introduced. The cyanide ion extracts the silver remaining in the emulsion on the film base, according to the reactions:



The concentrate with the argentocyanide complex ion is pumped to one of the plating tanks where the silver is deposited on the cathode. The liquid remaining is suitable for reuse in another tank (B_1).

- C. Rinse water is added to the tank, about 1500 gallons, and recirculated for about thirty minutes. The water is then drawn off to:

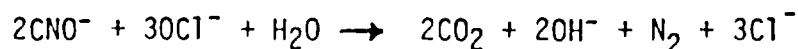
Use as rinse water in another tank (C_1), or

Use as make-up water for cyanide solution in a second tank (B_1), or

Taken to plating as appropriately determined by silver content.

There is a practical limit to the number of consecutive uses outlined in B_1 and/or C_1 due to concentration of constituents. After plating, the regenerated liquid may be used again in uses such as B_1 and/or C_1 , or it may be used as make-up in step D.

- D. An additional 1500 \pm gallons of water is fed into the tank, with about 6 to 7 gallons of sodium hypochlorite (NaOCl) solution, nominal 10 % strength. If the pH is lower than 11.5, it is adjusted with caustic soda (sodium hydroxide, NaOH). The tank contents are recirculated for about twenty hours, after which the liquid is withdrawn and reused in another tank (D_1). Again, as with the rinse water, there is a practical limit to the number of consecutive uses, due to the increasing concentration of cyanate, but the reaction:



occurs to some extent even at elevated pH, thus removing some excess cyanate from the solution. The reaction occurs rapidly at lowered pH.

Outline of Recovery Process (Continued)

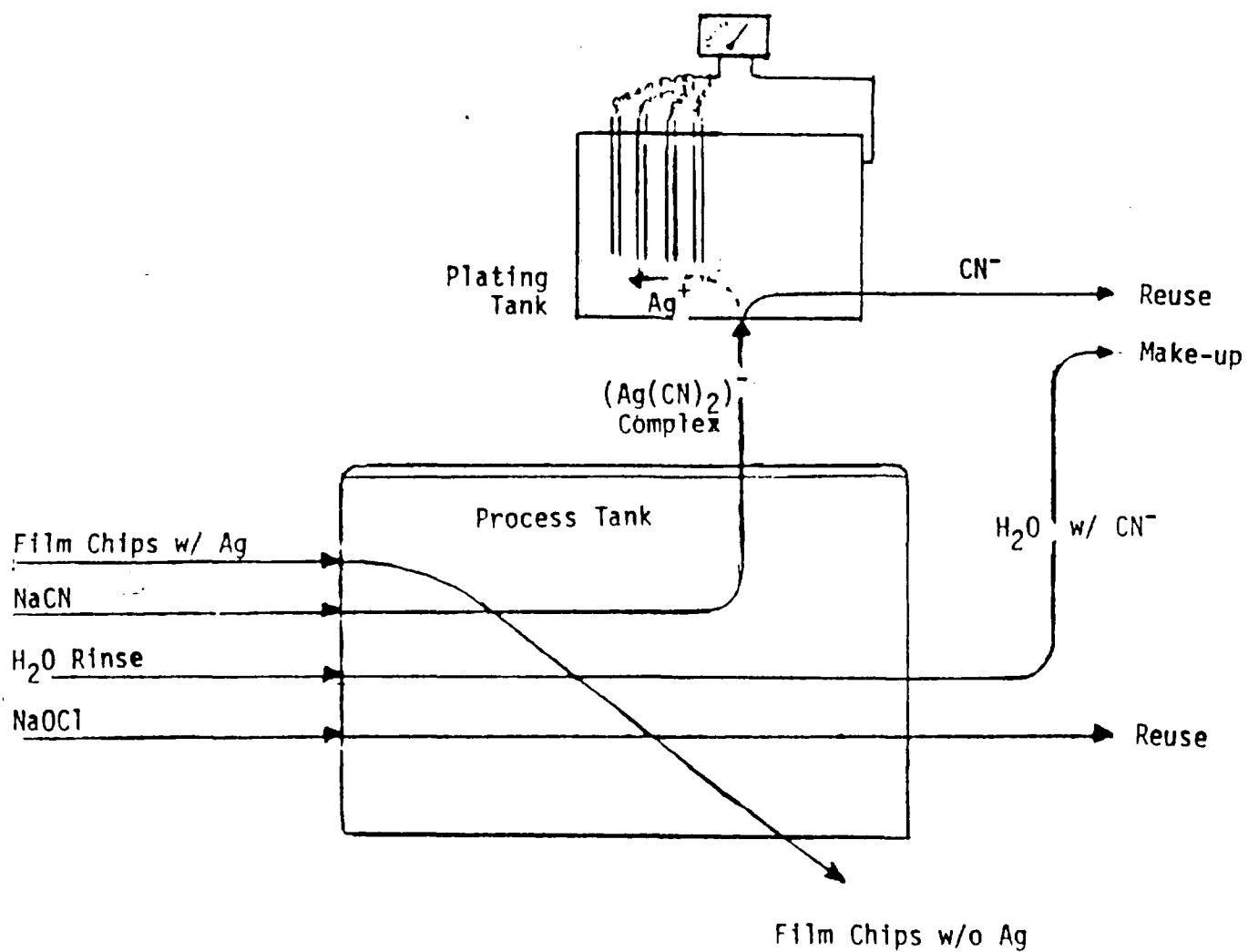
Cyanate has a low toxicity, and when the solution's use is exhausted, it may be discharged into the municipal sanitary sewer system where it is generally considered to cause no problems. The conversion reaction producing cyanate from cyanide is not reversible, i. e., cyanate does not break down to form cyanide. Cyanate breaks down to form carbon dioxide and nitrogen.

- E. When the liquid contents of the tank are removed, the tank is opened for the first time since charging it with film, and the residue of chips is now suitable for land disposal.

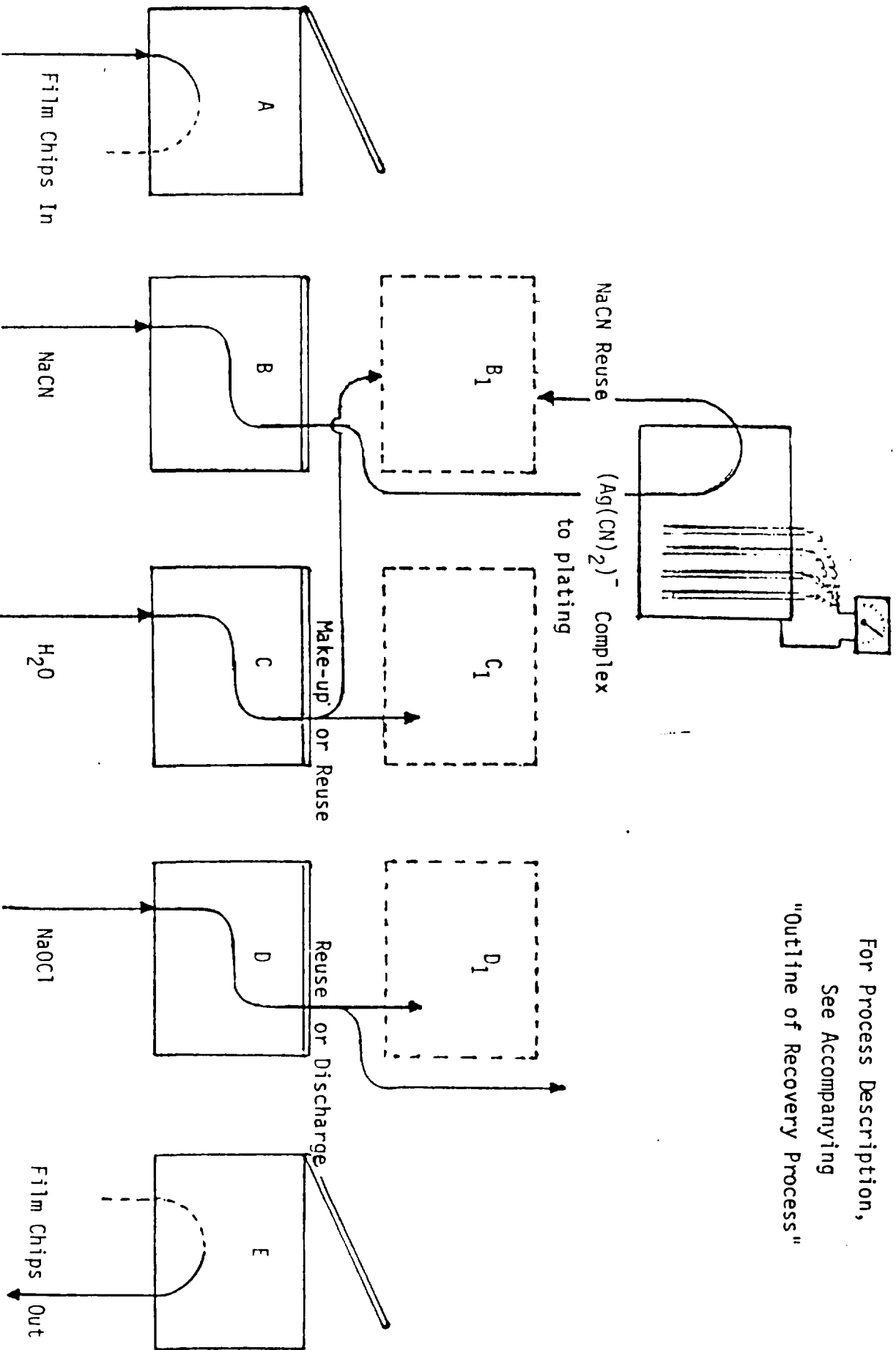
FLWSHEET, depicting the flow of waste throughout the process

Re: 10 CSR 25-9.010(1)(C)2.A.

Page 1 of 2 pages



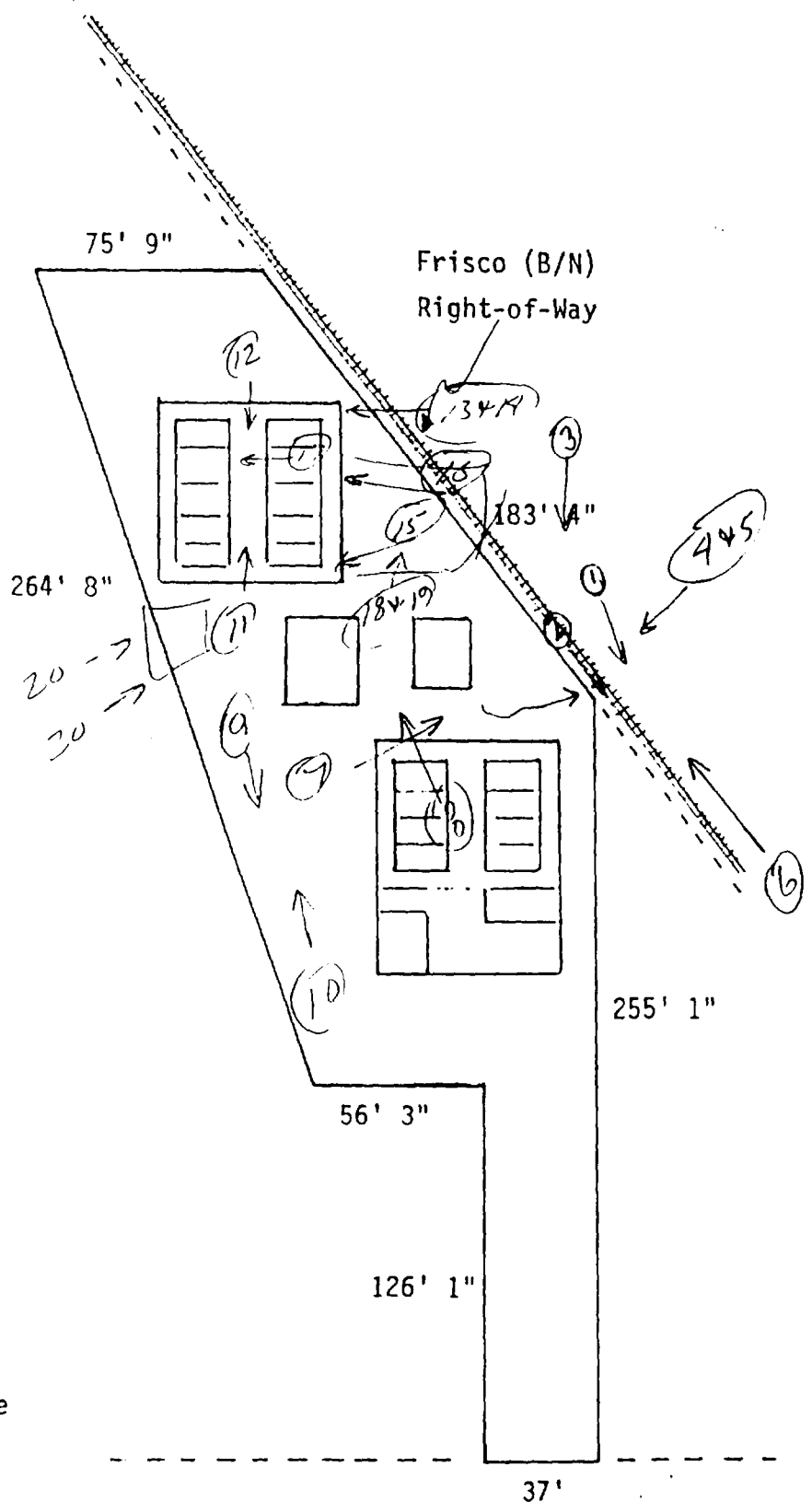
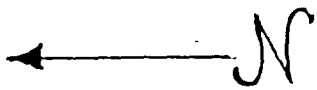
FLOWSHEET, depicting the flow of waste throughout the process
 Re: 10 CSR 25-9.010(1)(C)2.A.
 Page 2 of 2 pages.



For Process Description,
 See Accompanying
 "Outline of Recovery Process"

DETAIL OF PROPERTY

**SITE MAP IS
NOT ACCURATE**

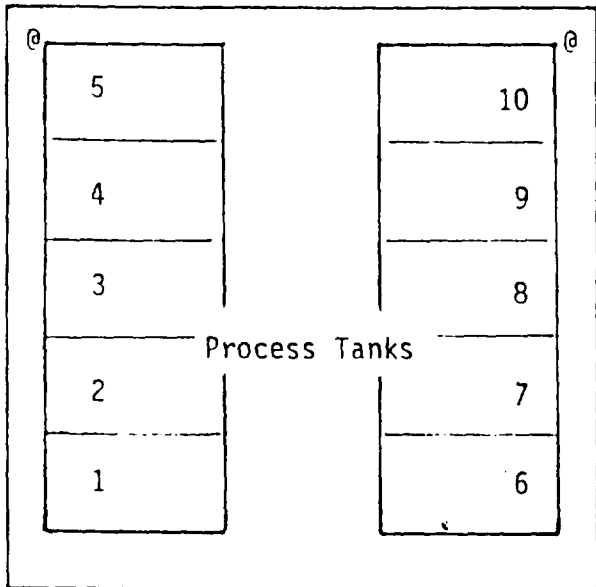


SCALE 1" = 60'

Location of Buildings Approximate

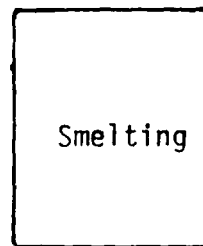
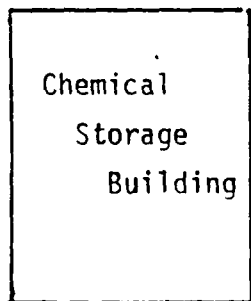
George Street Right-of-Way

DETAIL OF BUILDINGS

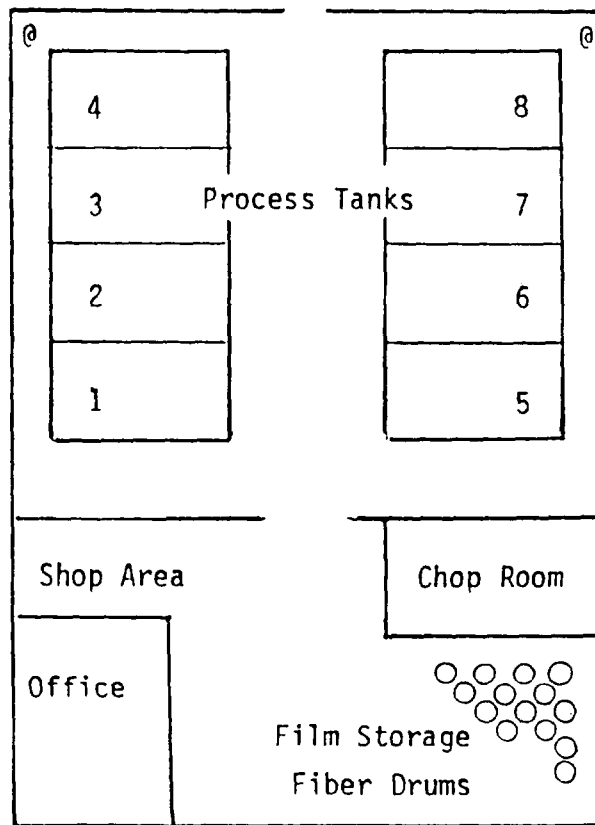


East Process
Building

@ Location of Sump Pumps
(2 Each Process Building)
Discharge to Empty Tank(s)



West Process
Building
and Office



SCALE 1" = 20'
Locations and Dimensions
of Buildings Approximate

QUALITY CONTROL PLAN

(Re: 10 CSR 25-9.010(1)(C)2.B.)

- I. A plan to insure that the quality and type of wastes accepted are compatible with the successful operation of the facility.

The facility is designed to recover the precious metal silver from the emulsion on cellulose acetate or plastic film base. It is not designed for any other resource recovery operation, nor for any treatment or disposal operation, and none is contemplated in the immediate future. The quality control measures which best assure the compatibility of the wastes accepted with the successful operation of the facility processes is simply to limit those wastes accepted to photographic and x-ray film.

- II. A plan for sampling and testing incoming shipments to assure that the wastes accepted can be handled by the facility.

In consideration of the discussion above whereby the only wastes to be accepted by the facility are photographic and x-ray film, no plans for sampling and testing of the incoming waste are contemplated, other than visual observation.

- III. A plan outlining any tests performed on the product of the facility

The facility's product is elemental, metallic silver. No particular program of testing by the facility is contemplated. The product will undergo purity assay on a regular basis, characteristic of the precious metals industry, by those to whom the product is marketed.

- IV. A plan for treatment and/or disposal of any residues generated as a result of the process.

Details of the plans for treatment and/or disposal of any residues generated as a result of the process, are contained in the discussion of the recovery process, sheet accompanying the "Flowsheet" included to satisfy the requirements of 10 CSR 25-9.010(1)(C)2.A., above.

